

# ON THE FISHES FROM THE MALDIVE ISLANDS.

## I. DREDGED. II. FRESH-WATER.

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THE Collection of Fishes from the Maldive Islands has been divided into two series. The first consists of the specimens dredged or trawled within the lagoons of the atolls. The second contains a few specimens taken from fresh-water pools on some of the islands.

The use of formalin as a preservative has rendered the fin rays very brittle, so that in most of the specimens the fins are more or less damaged.

I take this opportunity of gratefully acknowledging my indebtedness to Mr Boulenger, who has very kindly looked through the collection under notice, and confirmed my identifications.

### I. DREDGED FISHES FROM WITHIN THE LAGOONS.

There are 321 specimens, belonging to 65 species. They are mostly small, the lagoons probably being nurseries for young fish. This has made identification a very difficult matter in many cases, so that some specimens have been referred only to their genus, and many, which seem without doubt to belong to hitherto undescribed species, have been only briefly described, and have not been given specific names.

A list of the species follows. For convenience of reference I have kept to the arrangement of families in Günther's *Study of Fishes*.

#### ACANTHOPTERYGII.

##### Fam. **Percidae.**

1. *Apogon auritus*, C. and V. Suvadiva, 44 f. (fathoms).

2. *Apogon elliotti*, Day. (*Apogon nigripinnis*, Gthr. (Part); *Apogon arafuræ*, Gthr.)

Günther identified specimens belonging to this species with *Apogon nigripinnis*, C. and V., and later described a somewhat large specimen from the Challenger Collection as a new species.

*Apogon arafuræ*<sup>1</sup>: Day distinguishes between this species and *Apogon nigripinnis*, C. and V., from which it differs in many important characters.

In the specimens in the British Museum Collection, and in those from the Maldives, the length of the snout is  $\frac{2}{3}$  to  $\frac{3}{4}$  of the diameter of the eye, and in the Challenger specimen, described as *Apogon arafuræ*, the eye diameter is equal to the length of the snout, which is contained 4 times in the length of the head, this being due to the fact that the eyes become relatively smaller in larger fish. Day's statement that the length of the snout is  $\frac{1}{2}$  the diameter of the eye is probably, therefore, inaccurate.

Suvadiva, 44 *f.*, and Mulaku, 27 *f.*

3. *Apogon nigripinnis*, C. and V. Haddunati, 40 *f.*

A male fish, 47 mm. in total length, had its mouth full of eggs; and a specimen in the British Museum Collection shows the same phenomenon, which is, no doubt, a case of protection by the parent.

4. *Apogon septemstriatus*, Gthr. S. Nilandu, 36 and 30 *f.*

5. *Apogon fasciatus*, White. S. Nilandu, 30 *f.*

6. *Apogon* sp. N. Male, 35 *f.*

D. VII, 19; A. II, 8; L. lat. about 25.

This species is represented by two very small specimens, each 15 mm. in total length. The head is nearly half the total length. The body is dark brown, with a black band at the base of the dorsal, and a broad black longitudinal band ventrally. They cannot with certainty be said to belong to a hitherto undescribed species.

7. *Anthias cooperi*, n. sp.

D. x, 16; A. III, 7; Sc. 52,  $\frac{2}{13}$ ; L. lat. 50.

Depth of body three times in total length, length of head  $3\frac{1}{2}$  times. Snout scaly, shorter than the eye, the diameter of which is slightly greater than the interorbital width, and is contained three times in the length of the head. Lower jaw slightly projecting, scaly. Maxillary scaly, extending to below the centre of the eye, the width of its extremity  $\frac{2}{3}$  the diameter of the eye. Two or three spines at the angle of the preopercle; sub- and interopercle serrated; two opercular spines. Dorsal spines increasing in length to the fourth, rest subequal; no notch between spinous and soft portions; base scaly. Ventrals a little longer than the pectorals, not quite so long as the head. Anal spines strong, the first shortest, the second longer than the third; soft portion scaly at the base, pointed, the third ray longest. Caudal moderately emarginate. Caudal peduncle as long as deep. Lateral line curved. Coloration uniform, in spirit.

This species is allied to *Anthias cichlops*, *squamipinnis* and *townsendi*, from all of which it differs in having more numerous scales, and in having spines at the angle of the preopercle; in this latter feature it resembles *Anthias formosus* and *margaritaceus*, from which it differs in the important character of having the lateral line curved, not forming an angle below the hinder dorsal rays. Length of the specimen, 47 mm.

Haddumati, 40 *f.*

<sup>1</sup> Day, *Fishes of India*, i. pp. 60 and 63.

8. *Epinephelus sexfasciatus*, C. and V.

Three specimens less than 30 mm. in total length have a prominent spine at the angle of the preopercle, equal in length to  $\frac{1}{2}$  the diameter of the eye. A somewhat larger specimen, 48 mm. long, has the normal adult arrangement.

Haddumati, 35 *f.*

Fam. **Mullidae.**

9. *Upenoides tragula*, Richardson. Mulaku, 27 *f.*

Fam. **Cirrhitidae.**

10. *Cirrhitichthys oxycephalus*, Blkr. Haddumati, 40 *f.*

Fam. **Scorpaenidae.**

11. *Cocotropus roseus*, Day. N. Male, 35 *f.*  
 12. *Minous monodactylus*, Bl. Schn. S. Nilandu, 36 *f.* N. Male, 35 *f.*  
 13. *Pelor didactylum*, Pall. Suvadiva, 30 *f.*  
 14. *Amblyapistus macracanthus*, Blkr. Suvadiva, 30 *f.*  
 15. *Pterois zebra*, C. and V. Haddumati, 35 *f.*, and Kolumadulu, 35 *f.*

Fam. **Acanthuridae.**

16. *Naseus* (? *Keris*) sp. Suvadiva, 37 *f.*  
 D. VI, 29; A. II, 30.

A single specimen, 37 mm. in total length, closely resembles *Keris amboinensis*, Blkr., but differs in having the first dorsal spine longer than the others. Probably, like *Keris amboinensis*, it is the young form of a species of *Naseus*.

Fam. **Trachinidae.**

17. *Percis punctulata*, C. and V. N. Male, 35 *f.*  
 18. *Champsodon vorax*, Gthr. Suvadiva, 30 *f.*, and Mulaku, 27 *f.*  
 19. *Percophis* sp.  
 D. VII or VIII, 30—35; A. 30—35; Sc. 52.

A single badly preserved specimen, 35 mm. in total length, undoubtedly belongs to this genus, which has not before been known to occur in the Indian Ocean, only one species, *Percophis brasiliannus*, from the coast of Brazil, having been described.

Depth of body 12 times in the total length, length of head four times. A longitudinal band along the middle of the side. The shape and proportions of the body are exactly the same as in *Percophis brasiliannus*, which has, however, much smaller scales.

Kolumadulu, 33 *f.*

Fam. **Pediculati.**

20. *Antennarius nummifer*, Cuv. Haddumati, 35 *f.*

Fam. **Cottidae.**

21. *Platycephalus asper*, C. and V. Mulaku, 27 *f.*, and N. Male, 35 *f.*  
 22. *Platycephalus tuberculatus*, C. and V. Kolumadulu, 35 *f.*, and Haddumati, 40 *f.*  
 23. *Platycephalus spinosus*, Schleg. Kolumadulu, 35 *f.*

In this specimen, as in that in the British Museum Collection, the number of scales in a longitudinal series is 33, not 40 as given by Schlegel.

24. *Platycephalus subfasciatus*, Gthr. Mulaku, 27 *f.*

Fam. **Cataphracti.**

25. *Pegasus draconis*, Linn. Haddumati, 40 *f.*

Fam. **Gobiidae.**

26. *Gobius caninoides*, Blkr. Mulaku, 27 *f.*  
 27. *Gobius ornatus*, Riipp. S. Nilandu, 36 and 30 *f.*, Felidu, 34 *f.*, Mulaku, 27 *f.*, and Kolumadulu, 33 *f.*  
 28. *Gobius semidoliatus*, C. and V. N. Male, 35 *f.*  
 29. *Gobius ophthalmotaenia*, Blkr. S. Nilandu, 36 *f.*, and N. Male, 35 *f.*  
 30. *Periophthalmus* sp. S. Nilandu, 35 *f.*

One specimen, 33 mm. long. The ventral fins are not united. Probably a young specimen of *Periophthalmus chrysospilos*.

31. *Callionymus longicaudatus*, Schleg. S. Nilandu, 36 and 30 *f.*  
 32. *Callionymus lunatus*, Schleg. Suvadiva, 44 *f.*, and Haddumati, 40 *f.*  
 33. *Callionymus* sp. Suvadiva, 37 *f.*

D. IV, 7; A. 6. Length of the head about three times in the total length. Gill opening small, superior. Preopercular spine with four posterior teeth. Eye diameter about three times in the length of the head. Brownish, with darker bands or blotches, and with a series of narrow transverse bands on the gill membranes. The single specimen is 24 mm. in total length, and probably belongs to a hitherto undescribed species.

Fam. **Blenniidae.**

34. *Petroscirtes* sp.

D. 26; A. 16. This fish was dredged at Berriamfuri, N. Mahlos, in the lagoonlet, at a depth of four fathoms, in a Gastropod shell. Mr Gardiner says, "I kept this fish alive for some hours in a basin, it would swim round, always returning to its house. The favourite position was with the head just projecting out of the mouth of the shell."

The specimen is 28 mm. long.

35. *Clinus* sp. Haddumati, 40 f.

D. 24; A. 16; V. 1, 3; Sc. 30, 11.

The depth of the body is equal to the length of the head and is contained  $3\frac{1}{2}$  times in the total length. Snout shorter than the eye, the diameter of which is twice the interorbital width, and is contained  $3\frac{3}{4}$  times in the length of the head. The single specimen is 30 mm. in total length, and probably belongs to a species not before described, and differing from nearly all other species of *Clinus* in the large size of the scales.

#### ACANTHOPTERYGII PHARYNGOGNATHI.

##### Fam. Pomacentridae.

36. *Dascyllus melanurus*, Blkr. Felidu, 34 f.

37. *Amphiprion sebae*, Blkr. S. Nilandu, 30 f., and N. Male, 35 f.

38. *Pomacentrus punctatus*, Quoy and Gaim. Suvadiva, 43 f., and Haddumati, 40 f.

##### Fam. Labridae.

39. *Labroides dimidiatus*, C. and V. Felidu, 34 f.

40. *Julis schwanefeldii*, Blkr. Mulaku, 27 f.

41. *Cheilinus* sp. Mulaku, 27 f.

Four specimens 28—45 mm. long may be young specimens of *Cheilinus calophthalmus*.

42. *Cheilinus* sp. Mulaku, 27 f., and N. Male, 35 f.

Several young specimens less than 30 mm. long may belong to *Cheilinus ceramensis*.

43. *Cheilinus* sp. Suvadiva, 43 f.

Two very small specimens may belong to *Cheilinus celebicus*.

#### ANACANTHINI.

##### Fam. Pleuronectidae.

44. *Rhomboidichthys grandisquamis*, Schleg.

Describing this species<sup>1</sup>, Schlegel says, "The pectorals are not elongated. The males have a spine on the maxilla and another on the anterior margin of the lower eye. The interorbital width is equal to the diameter of the eye in the males, and is half the diameter of the eye in females. The body is more elongated in the females."

With regard to these features in the specimens from the Maldives: The pectorals are elongated in some, and not in others, without relation to size or sex. All the males have a maxillary spine, but some are without an antorbital spine. The females have neither spine. The interorbital width varies from  $\frac{3}{4}$  to  $1\frac{1}{2}$  diameters of the eye in males, and  $\frac{1}{3}$  to  $\frac{1}{2}$  diameter in females, and, as a rule, the eyes are relatively further apart in the larger specimens. The greatest depth of the body is not more in males than in females, but the eyes being wider

<sup>1</sup> Schleg., *Fauna Japonica*, Poiss., p. 183.



apart in the former, the head and anterior part of the body is broader, so that the females appear more elongated.

This species is distinguished from *Rhomboidichthys poecilurus*, Blkr., by the absence of a pair of black spots on the caudal, and by the greater size of the maxilla, which is contained  $2\frac{2}{3}$  times in the length of the head.

Suvadiva, 44 f., S. Nilandu, 36 and 30 f., Felidu, 34 f., and Mulaku, 27 f.

45. *Rhomboidichthys poecilurus*, Blkr. (*Rhomboidichthys grandisquama*, Gthr.; and *Rhomboidichthys spilurus*, Gthr.)

Bleeker, describing this species, gives the number of scales in a longitudinal series as about 45. Günther distinguishes between two species, *Rhomboidichthys grandisquama*, with 40 scales in a longitudinal series, which he identifies with *Rhombus grandisquama*, Schleg., in reality a quite distinct species; and *Rhomboidichthys spilurus*, with 48 scales in a longitudinal series, and the eyes closer together.

In the 13 specimens from the Maldives the scales vary from 40—48 in a longitudinal series, nearly all intermediate numbers being found. The males have a knob on the maxilla, and the interorbital width equal to the diameter of the eye. The females have no maxillary knob, and the interorbital width is about  $\frac{1}{2}$  the diameter of the eye. In immature fish the eyes are closer together.

This species is distinguished from *Rhomboidichthys grandisquamis* in that it has a pair of black spots on the caudal, in the middle of the upper and lower margins respectively, and has a smaller mouth, the length of the maxilla being contained  $3\frac{1}{3}$  times in the length of the head.

Suvadiva, 44 f., and 34 f.

46. *Rhomboidichthys intermedius*, Blkr. Suvadiva, 44 f., and Felidu, 34 f.

47. *Rhomboidichthys pantherinus*, Blkr. Suvadiva, 43 f., and S. Nilandu, 36 and 30 f.

48. *Brachypleura xanthosticta*, Gthr. Suvadiva, 44 f., and Mulaku, 27 f.

49. *Cynoglossus brachycephalus*, Blkr. Mulaku, 27 f.

50. *Samaris maculatus*, Gthr. Suvadiva, 45 f.

In the Challenger Report this species is described, from one specimen, as having three series of dark spots, five along the dorsal profile, four along the lateral line, and five along the ventral profile. In two small specimens from the Maldives, each 29 mm. in total length, these spots are connected by dark lines, the colour being preserved better.

*Samaris cristatus*, Gray, differs from *Samaris maculatus* in having a somewhat smaller head and deeper body, and in the elongation of the anterior dorsal rays, but the two specimens in the British Museum Collection have dark spots feebly visible in the same position as in *Samaris maculatus*. These specimens are males, and that named *Samaris maculatus* is a female, and apparently the small specimens from the Maldives are females, so that it seems possible that the differences are not specific, but sexual. The elongation of the anterior dorsal rays is characteristic of the males in the allied genus *Brachypleura*, and in many other fishes of this family.

In *Samaris maculatus* the length of the head is 4 times in the total length, the depth of the body  $2\frac{3}{4}$  to 3 times.

In *Samaris cristatus* the length of the head is  $4\frac{1}{2}$ —5 times in the total length, the depth of the body  $2\frac{1}{2}$  times.

51. *Solea poropterus*, Blkr. Mulaku, 27 f.

#### PHYSOSTOMI.

##### Fam. Scopelidae.

52. *Saurus varius*, Lacep. S. Nilandu, 36 f. and 30 f., Felidu, 34 f., Kolumadulu, 33 f., and N. Male, 35 f.

53. *Saurida nebulosa*, C. and V. S. Nilandu, 36 f., Felidu, 34 f., and N. Male, 35 f.

54. *Saurida tumbil*, Bl. Suvadiva, 44 f., Felidu, 34 f., and Kolumadulu, 33 f.

#### LOPHOBRANCHII.

##### Fam. Syngnathidae.

55. *Syngnathus* sp. Haddumati, 35 f.

D. 23. Osseous rings 15—16 + 35—40. Length of the head 8 times in the total length. Snout a little shorter than the rest of the head. A bony ridge crosses the opercle. Edges of osseous rings serrated. Dorsal fin commences behind the anus. Brown vertical bands on the body.

Two specimens, each 55 mm. long.

56. *Ichthyocampus belcheri*, Kaup. Suvadiva, 44 f.

##### Fam. Solenostomidae.

57. *Solenostoma paradoxum*, Pall. Mulaku, 27 f.

Bleeker has described small specimens of a species of *Solenostoma* with a slender snout, in which the caudal peduncle is longer than the base of the second dorsal, and named them *Solenostoma brachyurum*. One of these is in the British Museum Collection. Günther has written in the Museum Catalogue, "Considering that we know nothing of the changes which *Solenostoma* undergoes during its growth, it is to be regretted that Dr Bleeker did not examine these specimens more carefully, but merely attached a new name to them."

The specimen from the Maldives seems undoubtedly of the species *Solenostoma paradoxum*. The snout is more slender and the caudal peduncle relatively longer than in the adult. Probably the badly preserved specimen labelled *Solenostoma brachyurum* in the British Museum Collection also belongs to this species, in which case the changes during growth can be shown thus:

	Total Length	Depth of Snout Length of Snout	Length of Caudal Peduncle Base of Second Dorsal
(Specimen in Brit. Mus.)	50 mm.	$\frac{1}{9}$	$\frac{2}{1}$
(Maldive specimen)	67 mm.	$\frac{1}{8}$	$\frac{3}{2}$
(Specimen in Brit. Mus.)	97 mm.	$\frac{1}{6}$	$\frac{7}{8}$

## PLECTOGNATHI.

Fam. **Sclerodermi.**

58. *Balistes niger*, Mungo Park. Haddumati, 40 *f.*  
 59. *Monacanthus nasicornis*, Schleg. Suvadiva, 37 *f.*  
 60. *Monacanthus oculatus*, Gthr. S. Nilandu, 30 *f.*  
 61. *Monacanthus choirocephalus*, Blkr. Suvadiva, 43 *f.*, and Mulaku, 27 *f.*  
 62. *Monacanthus* sp. Suvadiva, 45 *f.*

D. 24; A. 24. Dorsal spine barbed. Ventral spine moveable. The specimen is too small for determination of the species.

63. *Ostracion cornutus*, Linn. N. Male, 35 *f.*

The specimen is 24 mm. long, and differs from the adult in having a well-developed spine on the back, in the lesser development of the antorbital and ventral spines, and in having a more projecting snout. A similar specimen in the British Museum Collection is labelled *Ostracion cornutus*.

Fam. **Gymnodontes.**

64. *Tetrodon* sp. S. Nilandu, 36 *f.*

D. 8 or 9; A. 6 or 7. The back is broad, snout equal in length to the diameter of the eye and also to the interorbital width. A simple perforate nasal tentacle on each side. Body covered with three-rooted spines, except on the tail. Purplish brown above, lighter beneath; small brown spots on the back. The single small specimen almost certainly belongs to a hitherto undescribed species.

65. *Tetrodon valentini*, Blkr. Haddumati, 40 *f.*

## II. FISHES TAKEN IN FRESH-WATER POOLS.

There are 14 specimens belonging to 6 species, two of which have not been described before. They are mostly marine fishes which are known to ascend estuaries into fresh-water, or are allied to fishes with this habit, only one being a true fresh-water fish. A list of the species follows.

## ACANTHOPTERYGII.

Fam. **Percidae.**

1. *Gerres maldivensis*, n. sp.

D. IX. 10, A. III. 8; Sc.  $40\frac{4}{10}$ .

Depth of body  $2\frac{1}{3}$  times in the total length, length of head  $2\frac{3}{4}$  times. The length of the snout is equal to the interorbital width and  $\frac{3}{4}$  the diameter of the eye, which is contained  $2\frac{2}{3}$  times in the length of the head. The maxilla extends to below the first third



of the eye. The caudal peduncle is nearly as high as long. The second dorsal spine is the longest, and is  $\frac{2}{3}$  the length of the head; from it they decrease in length to the fifth, the rest subequal. The second anal spine is longer than the third. Pectorals  $\frac{4}{5}$  the length of the head. Ventrals do not quite reach the anal. Caudal deeply forked. Light, with indistinct dark vertical streaks. Length of specimen, 73 mm.

Fishes of this genus commonly ascend estuaries into fresh water. A fresh-water pool, surrounded by mangroves, in the centre of Landu, Miladumadulu Atoll.

Fam. **Gobiidae.**

2. *Gobius criniger*, C. and V.

From the lake, Kendikolu, Miladumadulu Atoll.

Fishes of this species are common in backwaters.

Fam. **Mugilidae.**

3. *Mugil coeruleomaculatus*, Lacep.

Fishes of this genus commonly ascend tidal rivers, and a few, but not those of this species, are entirely fresh-water.

From the mangrove lake, Landu, Miladumadulu Atoll.

PHYSOSTOMI.

Fam. **Cyprinidae.**

4. *Barbus vittatus*, Day.

A true fresh-water fish, from the bathing pool, Hulule, Male Atoll, and from the mangrove lake, Landu, Miladumadulu Atoll.

Fam. **Clupeidae.**

5. *Chanos salmoneus*, Bl. Schn.

Fish of this species ascend rivers, and have been introduced and thrive in fresh-water tanks in India. From the lake, Kendikolu, Miladumadulu Atoll.

6. *Chanos gardineri*, n. sp.

D. 14, A. 9; P. 16, V. 11; Sc. 70—75 $\frac{11}{15}$ .

Depth of body  $4\frac{3}{4}$  times in the total length, length of head  $3\frac{1}{4}$  times. Snout shorter than the eye, the diameter of which is equal to the interorbital width, and is contained  $3\frac{1}{4}$  times in the length of the head. The scales are enlarged on the back just behind the head, and on the abdomen. Dorsal highest in front, the longest ray  $\frac{2}{3}$  the length of the head, margin concave, two rows of scales at the base. Pectorals rounded, more than  $\frac{1}{2}$  the length of the head. Ventrals rounded, arising beneath the posterior  $\frac{1}{3}$  of the base of the dorsal. Anal scaly at the base, margin concave. Caudal deeply forked, its longest ray equal to the length of the head. Caudal peduncle twice as long as high.

The colour is probably similar to that of *Chanos salmoneus*, but owing to preservation of the specimens in formalin this cannot be certainly stated.

The head is much larger, and the body shorter, not so deep, and less compressed than in *Chanos salmoneus*. The scales are less numerous, and the pectorals and ventrals rounded, not pointed. Of all the supposed species of *Chanos* which have been described under various names, and are now generally regarded as varieties of *Chanos salmoneus*, none are found to correspond with this species. Whenever proportional measurements are given the length of the head is described as  $\frac{1}{4}$  of the total length without the caudal, or as  $5\frac{1}{2}$  times in the total length with the caudal. The depth of the body is never less than  $5\frac{1}{2}$  times in the total length, with the caudal. The pectorals are always described as pointed. In some cases the scales are given as less than 80 in a longitudinal series, *i.e.* in *Chanos pala*, Cantor. and *Chanos orientalis*, Blkr., but this is the only point of agreement. Sometimes no characters of specific importance are given, *e.g.* *Leuciscus zeylonicus*, Bennett.

The conclusion is that this species is very distinct, and has not been described before.

There are three specimens, 116, 104, and 74 mm. in total length, from the north pool of Hulule island, Male Atoll.